

REMARKS

In paragraph 1 of the office action dated June 29, 2005, claims 6 – 20 and 22-24 were rejected under 35 U.S.C 112, second paragraph, as being indefinite due to multiple dependencies. Applicant amends the claims to remove the multiple dependencies.

In paragraph 2 of the office action, claim 20 was rejected under 35 U.S.C 112, second paragraph, as being indefinite due to the use of the phrase “sufficient time”. Applicant amends claim 20 to remove the indefinite phrase. In addition, applicant noted that claim 23 also included the indefinite phrase. Claim 23 has been amended accordingly to delete the reference to “sufficient time”.

In paragraphs 3–5 of the office action, claims 1, 2, 3, 7, 9, 10, 12, 14-16 and 18 were rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Toshiharu et al. Applicant amends the claims to more particularly point out the present invention and distinguish it from Toshiharu et al. Specifically, claims 1 and 21 have been amended to point out that the resin layer and hardener layer are both in direct contact with opposite sides of the fibrous reinforcement layer. The fibrous reinforcement layer serves as a barrier during storage of the uncured composite product that prevents premature reaction of the resin and hardener. As pointed out in Paragraph 30, line 3 of the application, “the resin and hardener layers must be separated by a fibrous reinforcement that is dry over at least part of its thickness, thus establishing a physical barrier between said interacting components”. The remaining claims are all dependent on claims 1 or 21. Accordingly, the following arguments regarding patentability apply to all of the claims.

Toshiharu et al. specifically requires “the combination of a thermosetting resin layer, a contact preventive film layer of a heat-fusing type, and a hardening agent layer, each of the said layers adhering to the adjoining layer, a fiber base member being embedded at least in either of the foregoing thermosetting resin layer or the hardening agent layer” (Col. 2, lines 28-34, emphasis added). As shown in FIGS. 1-3

of Toshiharu et al., the contact preventive film layer 3 is located only between (i.e. adjoined to) the resin layer 2 and hardener layer 4. The fiber layer or base 1 is embedded in either the resin layer 2 (FIG. 1), hardener layer 4 (FIG. 2) or both the resin layer 2 and hardener layer 4 (FIG. 3).

Applicant respectfully submits that the Examiner's characterization of Toshiharu et al. as teaching a "composite product including a fibrous reinforcing layers (1,3) with two sides having a resin layer (2) and hardening agent layer (4) bonded to each respective sides thereof." (See second sentence of paragraph 5 of the office action) is incorrect. Applicant further submits that the error may be due to identifying reference numeral 3 as a reinforcing layer when it actually is the contact preventive film layer (See Col. 5, lines 37-41).

If anything, Toshiharu et al. teaches away from applicant's invention because it requires that the fibrous reinforcement layer be embedded solely in either the resin or hardener layer. Applicant's invention, on the other hand, requires that the fibrous reinforcement layer be sandwiched between the resin and hardener layers. In addition, Toshiharu et al. teaches that the physical barrier between the resin and hardener layers must be made from a heat-fusible type of material, such as thermoplastic resin films of polyethylene, polyvinylchloride, polyethylene oxide, polyacrylate esters, copolymers of ethylene and vinyl acetate, and the thermoplastic film of gelatine or the like. (See Col. 3, line 74 to Col. 4, line 5). Toshiharu et al. warns that the use of such thermoplastic materials must be limited in order to prevent deterioration of the characteristics of the heat-hardened body (Col 4, lines 17 - 21). There is no teaching or suggestion in the record that fibrous reinforcement layers are an obvious substitute for the completely different thermoplastic resin film barriers as taught by Toshiharu et al.

Applicant's discovery that the fibrous reinforcement layer can advantageously be used to form a suitable physical barrier between the resin and hardener layers provides the unexpected advantages of eliminating the above-discussed problems associated with using thermoplastic barriers, while at the same time simplifying the overall composite structure and providing necessary fiber reinforcement. Toshiharu

et al. discloses nothing more than the generally recognized prior art teaching that a solid film or other solid barrier must be used to separate the resin and hardener layers to prevent premature curing. Applicant's invention involving the use of relatively porous reinforcement layers as the barrier between resin and hardener is a substantial and nonobvious departure from this conventional line of thinking.

In paragraph 6 of the office action, claims 1-20 were rejected under 35 U.S.C. 103(a) as being unpatentable over Toshiharu et al. in view of Kuhn. The same arguments as set forth above are applicable to distinguishing the present invention from Toshiharu et al. With regards to Kuhn, this reference teaches a centrally located fibrous reinforcement 1 that is impregnated with resin and separated from hardener layers 5 by separator means that includes an apertured separating material 6, adhesive layer 7 and covering sheet material 8 (Col. 7, line 22-32). This reference does not provide the elements of applicant's invention that are missing from Toshiharu et al. Specifically, there is no teaching to use the fibrous reinforcement layer as a barrier to separate the resin from the hardener. Instead, the fibrous reinforcement layer is impregnated with resin and, like Toshihara et al., Kuhn teaches the use of a solid separator means between the resin and hardener that becomes penetrable (ruptured) when subjected to flexible deformation (Col. 7, line 28 – Col. 8, line 9). If anything, Kuhn also teaches away from applicant's invention because he specifically requires the use of a specialized separator configuration between the resin and hardener that is completely different from applicant's fibrous reinforcement separator.

In view of the above amendments and remarks, applicant respectfully requests that this application be reexamined and that the claims, as now amended, be allowed.

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Respectfully submitted,

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